

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims

Claims 1-19 (cancelled)

Claim 20 (currently amended): A method for preparing a circuit board material, comprising:

providing a plating bath comprising: nickel sulfamate at a concentration of 300 to 600g/l; and at least one of phosphoric acid, phosphorous acid, hypophosphorous acid, and salts thereof at a concentration of phosphorus of 20 to 150g/l;

providing an electrode inside the plating bath;

providing a conductive metal foil inside the plating bath to face the electrode, the conductive metal foil having a first surface and a second surface, the second surface being masked, wherein the conductive metal foil is selected from the group consisting of copper foil, aluminium foil, aluminium alloy foil, and iron alloy foil; and

applying current between the electrode and the conductive metal foil to form a thin resistance layer plated on the first surface of the conductive metal foil to prepare a circuit board material.

Response under 37 C.F.R. §1.114
Application No. 10/719,020
Attorney Docket No. 032130

Claim 21 (cancelled)

Claim 22 (previously presented): A method for preparing a circuit board material according to claim 20, wherein the plating bath further comprises at least one of sulfuric acid, hydrochloric acid, and salts of the same.

Claim 23 (previously presented): A method for preparing a circuit board material according to claim 20, wherein the plating bath has a pH of not more than 6.

Claim 24 (previously presented): A method for preparing a circuit board material according to claim 20, wherein the plating bath is kept at a temperature of 30 to 80°C.

Claim 25 (previously presented): A method of preparing a circuit board material according to claim 20, wherein the current is applied at a current density of 1 to 30 A/dm².

Claim 26 (currently amended): A method of preparing a circuit board material according to claim 20, further comprising adhering an insulating material to the thin resistance layer formed on the first surface ~~wherein the circuit board material is adhered to an insulating material,~~ and etching the conductive metal foil ~~wherein the circuit board material is etched~~ to make a circuit pattern.

Response under 37 C.F.R. §1.114
Application No. 10/719,020
Attorney Docket No. 032130

Claim 27 (currently amended): A circuit board material, comprising:

a conductive metal foil having a first surface and a second surface, wherein the conductive metal foil is selected from the group consisting of copper foil, aluminium foil, aluminium alloy foil, and iron alloy foil; and

a thin resistance layer formed on the first surface of the conductive metal foil, wherein the thin resistance layer is formed in a plating bath comprising: nickel sulfamate at a concentration of 300 to 600g/l; and at least one of phosphoric acid, phosphorous acid, hypophosphorous acid, and salts of the same at a concentration of phosphorus of 20 to 150g/l.

Claim 28 (cancelled)

Claim 29 (previously presented): A circuit board material according to claim 27, wherein the thin resistance layer is made of an Ni alloy containing 2 to 30 wt% of P.

Claim 30 (currently amended): A circuit board material according to claim 27, wherein at least the first surface of the thin resistance layer formed on the conductive metal foil has a surface having a roughness Rz of not more than 3.5 µm.

Claim 31 (currently amended): A circuit board material according to claim 27, further comprising an insulating material adhered to the thin resistance layer ~~wherein the circuit board~~

Response under 37 C.F.R. §1.114
Application No. 10/719,020
Attorney Docket No. 032130

~~material is adhered to an insulating material~~ and wherein the conductive metal foil circuit board
~~material is capable of being etched~~ etched to form ~~[[make]]~~ a circuit pattern.